Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Procedures to Govern the Use of	)	**IB Docket No. 02-10**
Satellite Earth Stations on Board	)	
Vessels in Bands Shared With	)	
Terrestrial Fixed Service	)	

REPLY COMMENTS OF THE BOEING COMPANY

The Boeing Company ("Boeing") hereby replies to comments filed in response to the Commission's Notice of Inquiry regarding "issues related to the authorization of satellite earth stations on board vessels (ESVs)."[1]

Several commenters discussed technical parameters and possible operating restrictions for ESVs. Boeing emphasizes that, for a given earth station on board a vessel, these parameters and restrictions may vary from some reference set, and still, with appropriate precautions, harmful or impermissible interference to fixed service (FS) operations will not occur.

Boeing concurs with Inmarsat and Harris MCS on this matter. Inmarsat states, regarding the distances determined by ITU-R study group JWP 4-9S, for Ku- and C-bands, beyond which unacceptable interference to the FS would not be caused, that, "These distances are based on the characteristics of FS systems in many different countries. Therefore the Commission should consider applying smaller distances to the U.S. coastline, based on the particular characteristics of FS stations operating in U.S. and previous experience of ESV operation."[2]

Harris MCS says that, "Should ESV restrictions become necessary, Harris MCS favors a more dynamic, multi-factor 'sliding-scale' that would adjust individual

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[1] See ¶ 1 of "In the Matter of Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in Bands Shared With Terrestrial Fixed Service," Notice of Inquiry, FCC 02-18, IB Docket No. 02-10, released February 4, 2002.

[2] Comments of Inmarsat Ventures plc, pp. 5-6.

restrictions according to the *cumulative* potential for interference."[3] This is based on the fact that unacceptable interference to the FS from ESVs can be avoided even while relaxing one or more technical or operating restrictions as long as another appropriate restriction is maintained or tightened, or as long as the FS operating environment allows it. One example would be that an upper limit on the maximum EIRP density radiated towards the horizon by a particular earth station on a ship could be relaxed if ducting effects for a particular coastal area were less[4]. Another example would be that there should be no upper limit on ESV transmission bandwidth if there are no fixed service operations in the band. A third example would be that the lower bound on elevation angle of the axis of ESV transmissions could be relaxed if an appropriate upper limit on EIRP density towards the horizon in the direction of any fixed service receiver is maintained.

Similarly, interference potential should be the deciding factor in determining the allowable operating area of an ESV in a frequency band. If an ESV operator can demonstrate for an intended ESV operating area that all coastal FS receivers in affected frequencies are out of interference range, it should be allowed to operate within that area. Thus there should be no *a priori* restriction that ESVs be limited to use the 6 GHz bands only on the "high seas" as FWCC proposes.[5]

Several companies commented on possible regulations pertaining to ESVs operating on foreign flagged vessels. Boeing believes that there should be no special licensing preconditions for ESVs on foreign vessels[6], because the interference potential for ESVs on all vessels is fundamentally the same. Boeing's position on the treatment of ESVs on foreign vessels accords with Inmarsat's comments.[7] We disagree with FWCC's proposal[8] that "bilateral agreements" between the U.S. and the nation of vessel registry

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[3] Comments of Maritime Communications Services, Inc., a Subsidiary of Harris Corporation, p. 4.
[4] See "Recommendation ITU-R P.452-10: Prediction procedure for the evaluation of microwave interference between stations on the surface of the Earth at frequencies above about 0.7 GHz."
[5] Comments of the Fixed Wireless Communications Coalition, pp. 6-7.
[6] Note the absence of special licensing preconditions on foreign space stations as compared to U.S. space stations. See ¶¶ 213, 214 of "In the Matter of Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States," Report and Order, FCC 97-399, IB Docket No. 96-111, released November 26, 1997.
[7] Comments of Inmarsat Ventures plc, pp. 5-6.
[8] Comments of the Fixed Wireless Communications Coalition, pp. 9-11.

should be in place before licensing of ESVs on foreign vessels occurs. This would be unduly burdensome on both the ESV users and the Commission.

Finally, several companies commented on the question raised by the Commission[9] of whether the Commission should take enforcement actions against gateway operators when the ESV the gateway serves causes adverse interference. The Commission should not penalize gateway operators for adverse interference transmitted by ESVs. This is unfair because the "FSS gateway operators generally have limited control over the operation of an interfering ESV,"[10] in that the gateway operators are only receivers, not transmitters, of any ESV transmission that may interfere.

Boeing encourages the Commission to continue to work towards normalizing licensing processes to facilitate long term and international ESV operation. As the Commission formulates a regulatory framework for ESVs, it should consider the benefits of flexibility to accommodate systems that, while not fitting a preconceived array of characteristics, nevertheless can be operated without causing interference to other allocated services. This would be improved efficiency of spectrum use as well as a valuable benefit to vessels.

[9] See ¶ 22 of "In the Matter of Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in Bands Shared With Terrestrial Fixed Service," Notice of Inquiry, FCC 02-18, IB Docket No. 02-10, released February 4, 2002.

[10] Comments of Intelsat Global Service Corporation, p. 3.

Respectfully submitted,

THE BOEING COMPANY

_/s/_Michael T. Fitch_____

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June 10, 2002